TYAN® GT20

B7002

Service Engineer's Manual

PREFACE

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Notice for the USA
Compliance Information Statement (Declaration of Conformity Procedure) DoC FCC Part 15: This device complies with part 15 of the FCC Rules

Operation is subject to the following conditions:

1) This device may not cause harmful interference;

2) This device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

   – Reorient or relocate the receiving antenna.
   – Increase the separation between the equipment and the receiver.
   – Plug the equipment into an outlet on a circuit different from that of the receiver.

   Consult the dealer on an experienced radio/television technician for help.

Notice for Canada
This apparatus complies with the Class A limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe A d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)

Notice for Europe (CE Mark)
This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. There will be danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulatio--ns.

About this Manual

This manual provides you with instructions on installing your TYAN® GT20. This Manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual consists of the following parts:

Chapter1: Provides an introduction to the GT20-B7002 bare--bones, standard parts list, describes the external components, gives a table of key components, and provides block diagram of the system.

Chapter2: Covers procedures on installing the CPU, memory modules and hard drives.

Chapter3: Covers removal and replacement procedures for pre-installed components.

Appendix: List the BIOS differences, cable connection and FRU part tables for reference of system setup, and technical support in case a problem arises with your system.

For information on the motherboard, please refer to the attached motherboard user's manual. You can find the detailed descripti--on about jumper and BIOS settings from the motherboard man--ual.

SAFETY INFORMATION

Before installing and using GT20-B7002, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the power company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the pur--pose of this pin. If you outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high volta--ge components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manuf--acturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

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Chapter 1: Overview

1.1 About the TYAN GT20-B7002

Congratulations on your purchase of the TYAN® GT20-B7002, a highly--optimized rack-mountable barebone system. GT20-B7002 is designed to support up to two Intel® "Nehalem-EP 2S" processors and up to 64GB DDR3-800/1066/1333 memory, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, GT20-B7002 server system is capable of offering scalable 32 and 64-bit computing, high bandwidth memory design, and lightning-fast PCI-E bus implementa--tion.GT20-B7002 not only empowers your company in nowadays IT demand but also offers a smooth path for future application usage.

TYAN® is also proud to deliver GT20-B7002 in flavor while supporting up to four hot-swap hard drives and one optional slim DVD ROM.
GT20-B7002 uses TYAN®'s latest chassis featuring a robust structure and a solid mechanical enclosure. All of this provides GT20-B7002 the power and flexibility to meet the needs of nowadays server application.

1.2 Product Models

Model	HDD Bays	Power supply
B7002G20V4H	Removable, 4HDDs	400W single

1.3 Features

TYAN GT20-B7002 (B7002G20V4H)

System	Form Factor	1U Rackmount
	Chassis Name	GT20
	Dimension (D x W x H)	22.4" x 17.2" x 1.72" (568 x 436 x 43.6mm)
	Motherboard	S7002GM2NR-LE
	Gross Weight	17.7kg
Front Panel	Buttons	(1) PWR / (1) RST / (1) NMI / (1) ID
	LEDs	(1) PWR / (1) HDD / (2) LAN / (1) ID / (1) Warning
	I/O Ports	(2) USB
External Drive Bay	Type / QTY	3.5" Hot-Swap / (4)
	Supported HDD Interface	1st priority: SATA
System Cooling Configuration	FAN	(5) 4cm fans
Power Supply	Type	EPS1U
	Input Range	Full-range AC(100-240V)
	Frequency	60 Hertz
	Output Watts	400 Watts
	Efficiency	80-plus
Processor	Supported CPU Series	Intel Xeon 5500 series QC/DC processors
	Socket Type / QTY	LGA1366 / (2)
	Thermal Design Power (TDP) wattage	95W

Processor	**System Bus (MHz)**	1333/1066/800
Chipset	**IOH / ICH**	Intel 5500 / ICH10R
	Super I/O	Winbond W83627
Memory	**Supported DIMM Qty**	(8) DIMM sockets
	DIMM Type / Speed	DDR3 800/1066/1333 RDIMM, UDIMM ECC
	Capacity	Up to 64GB
	Memory channel	3-Channel
	Memory voltage	1.5V
Expansion Slots	**PCI-E**	(1) PCI-E x16 slot
	Pre-install TYAN Riser Card	M2083-RS, PCI-E x16 1U riser card (left)
LAN	**Port QTY**	(2)
	Controller	Intel 82574
Graphic	**Connector type**	D-Sub 15pin
	Resolution	1600x1200@60Hz
	Chipset	Aspeed AST2050
I/O Ports	**USB**	6 ports (2 at front, 4 at rear)
	COM	1 port
	VGA	1 port
	RJ-45	2 ports
System Monitoring	**Chipset**	Winbond W83793G
	Voltage	Monitors voltage for CPU, memory, chipset & power supply
	Temperature	Monitors temperature for CPU & system environment

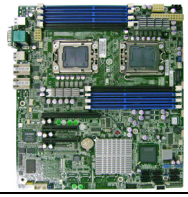
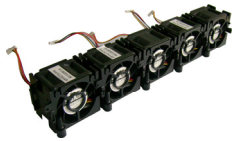
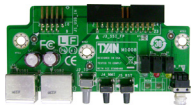
System Monitoring	**LED**	Fan fail LED indicator / Over temperature warning indicator
	Others	Watch Dog timer support
BIOS	**Brand / ROM size**	16MB / AMI
	Feature	Plug and Play (PnP) /PCI2.3 /WfM2.0 /SMBIOS2.3 /PXE Boot / ACPI 2.0 power management /Power on mode after power recovery / User-configurable H/W monitoring / Multiple boot options
Operation System	**OS supported list**	Please refer to our OS supported list.
Regulation	**FCC (Doc)**	Class A
	CE (Doc)	Yes
	C-Tick	Yes
	VCCI	Yes
Operating Environment	**Operating Temp**	10° C ~ 35° C (50° F~ 95° F)
	Non-operating Temp	- 40° C ~ 70° C (-40° F ~ 158° F)
	In/Non-operating Humidity	90%, non-condensing at 35° C
RoHS	**RoHS 6/6 Complaint**	Yes
Package Contains	**Motherboard**	(1) S7002GM2NR-LE
	Manual	(1) User's manual / (1) Quick Ref. Guide
	Installation CD	(1) TYAN installation CD
	I/O Shield	(1) I/O Shield
	Chassis Unit	(1) CCHA-0350, GT20 1U chassis unit (for B7002)

Package Contains	Cover		(1) CCCV-0140, Top cover for GT20 (B7002)
	HDD Tray		(4) CHDT-0051, Removable 3.5" HDD Tray
	Heatsink / Cooler		(5) CFAN-0241, 4 cm fans / (1) CHSK-0370, LGA1366 CPU heatsinks / (1) M1232, fan/ HDD adapter board
	Riser Card		(1) M2083-RS, PCI-E x16 riser card
	Front Panel board		(1) M1008, front panel board
	Power Supply		(1) CPSU-0281, 400W 1U (80 plus) single PSU
	Cable	SATA	(1) CCBL-067N, Mini SAS cable
		USB	(1) CCBL-035B, USB cable
		FAN	(1) CCBL-0391, Fan cable
		Front Panel	(1) CCBL-072N, front panel cable
		Power Cord	(1) CCBL-0310, US type power cord / (1) CCBL-0300, EU type power cord
Optional accessories for future upgrade	Front Bezel		(1) CFBZ-0070, Front bezel for GT series 1U chassis
	Rack Mounting Part		(1) CRAL-0032, Rail kit / (1) CEAR-0050, mounting ear kit
	Peripheral		(1) CDVD-0060, slim type DVD-ROM / (1) CCBL-0422, slim ODD SATA cable(1) CCBL-0326,SATA cable

1.4 Standard Parts List

This section describes GT20-B7002 package contents and accessories. Open the box carefully and ensure that all components are present and undamaged. The product should arrive packaged as illustrated below.

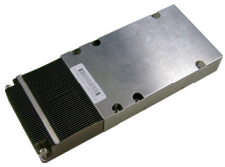
1.4.1 Box Contents

Component	Description
	1U chassis,(4) hot swap HDDbays
	TYAN® S7002 system board (pre-installed)
	400W single Power Supply
	(5) System FAN
	M1008： LED control board (pre-installed)
	M1232 HDD/Fan Board
	M2083-RS PCI-E riser card

1.4.2 Accessories

If any items are missing or appear damaged, contact your retailer or browse to TYAN®'s website for service: http://www.tyan.com
The web site also provides information of other TYAN® products, as well as FAQs, compatibility lists, BIOS settings, etc.

1 x TYAN® Motherboard Drive CD



1 x Heatsink

HDD Screws

Power Cables
Left to right: Europe, US

Mounting Ears & Screws

Barebone Manual & Mainboard Manual

Rail Kit

Rail with Bracket x 2

Screw Sack

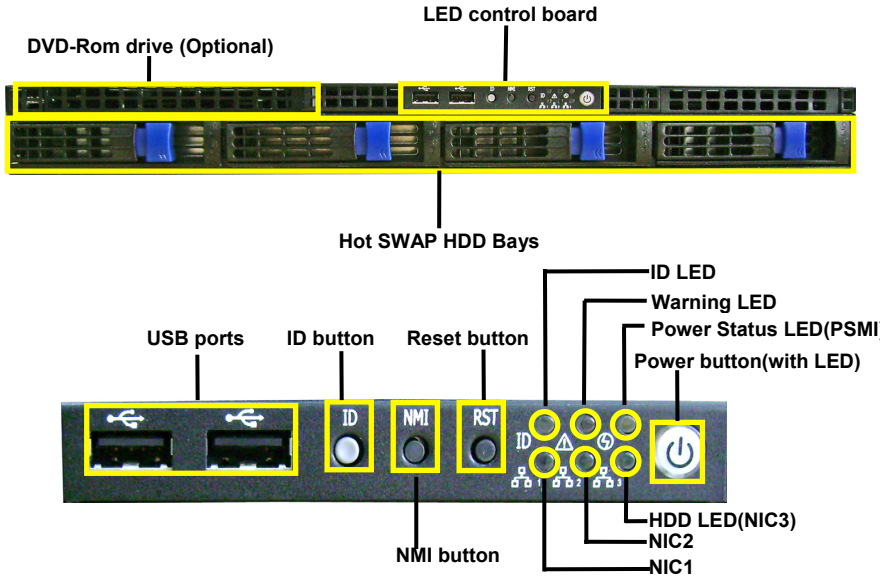
1.5 Optional Parts

Item	Model Number	Picture	Quantity	Description
DVD-ROM	CDVD-0060		1	Slim DVD drive, SATA
Chassis Front-Bezel	CFBZ-0070		1	Front Bezel for GT series 1U chassis

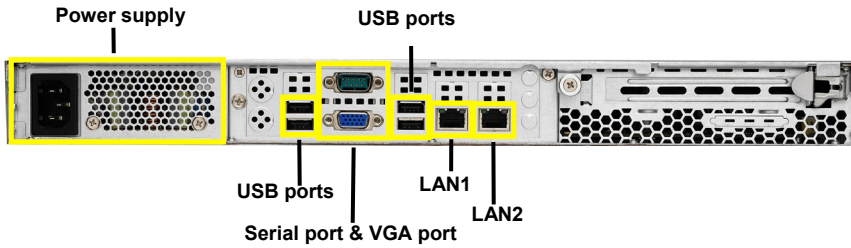
1.6 About the Product

The following views show you the product.

1.6.1 System Front View



1.6.2 System Rear View



1.6.3 LED Definitions

Front Panel

LED	State	Color	Description
Power LED	On	Green	System is turned on
	Blink	Green	System is under S1 or S3 state
	Off	Off	Power off
HDD LED(NIC3)	Off	Off	HDD not active
	Blinking	Green	HDD active
NIC1	Blinking	Green	LAN active
	On	Green	LAN linked
	off	off	LAN not linked
NIC2	Blinking	Green	LAN active
	On	Green	LAN linked
	off	off	LAN not linked
Warning LED	On	Red	Fan fail /Over temperature /Over voltage
	Off	Off	No failure
ID LED	On	Blue	System identified
	Off	Off	System not identified

Rear I/O

LAN1

LED	State	Color	Description
RJ-45 Linkage/ Activity(left)	On	Green	10Mb/100Mb/1000Mb linked
	Blinking	Green	10Mb/100Mb/1000Mb activity
	Off	Off	No LAN linked
RJ-45 Linkage/ Activity(Right)	On	Amber	1000Mb linked/activity
	On	Green	100Mb linked/activity
	Off	Off	10Mb mode or No LAN linked

NOTE: "Left" and "Right" are viewed from the rear panel.

LAN2 (shared by BMC)

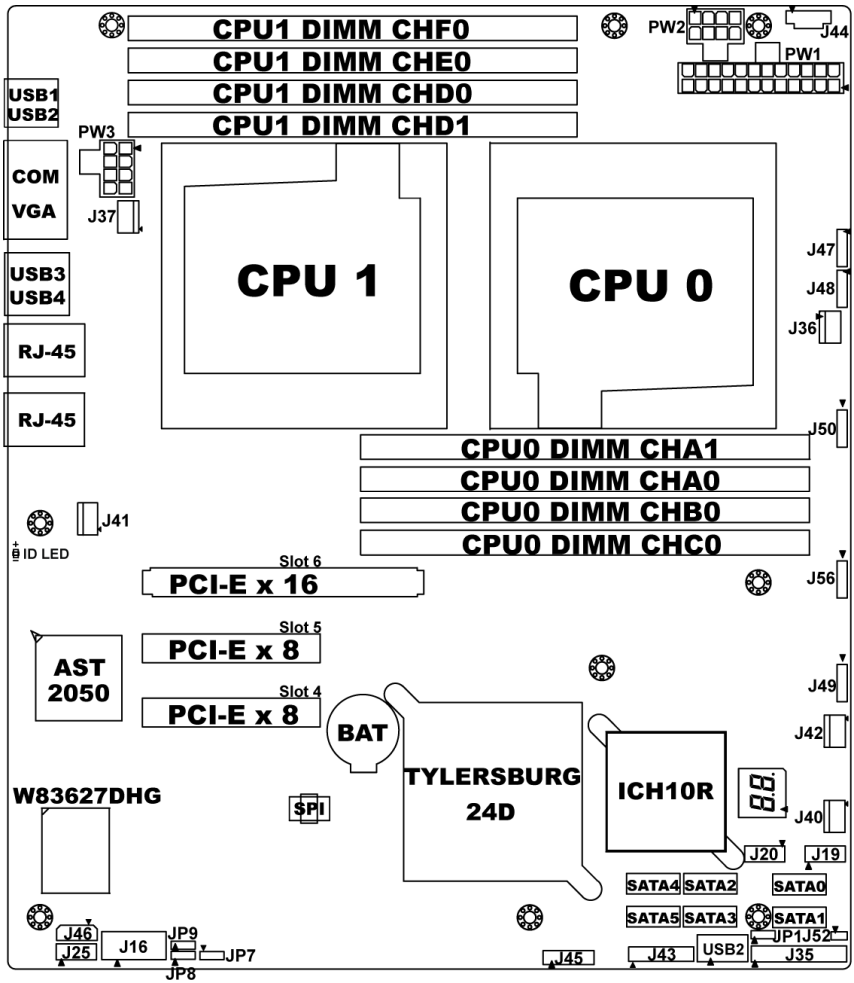
LED	State	Color	Description
RJ-45 Linkage/ Activity(left)	On	Green	10Mb/100Mb/1000Mb linked
	Blinking	Green	10Mb/100Mb/1000Mb activity
	Off	Off	No LAN linked
RJ-45 Linkage/ Activity(Right)	On	Amber	1000Mb linked/activity
	On	Green	100Mb linked/activity
	Off	Off	10Mb mode or No LAN linked

ID LED

LED	State	Color	Description
ID LED	On	Blue	System identified
	Off	Off	System not identified

Note: Press ID button when the system is AC (Alternating Current) on, then ID LED will show the system is identified with emitting blue light. Users from remote site could also activate ID LED by input a few commands in IPMI, detailed software support please visit http://www.tyan.com for lastest AST2050 user guide.

1.6.4 Motherboard (S7002) Layout

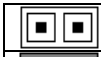


The diagram is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above diagram.

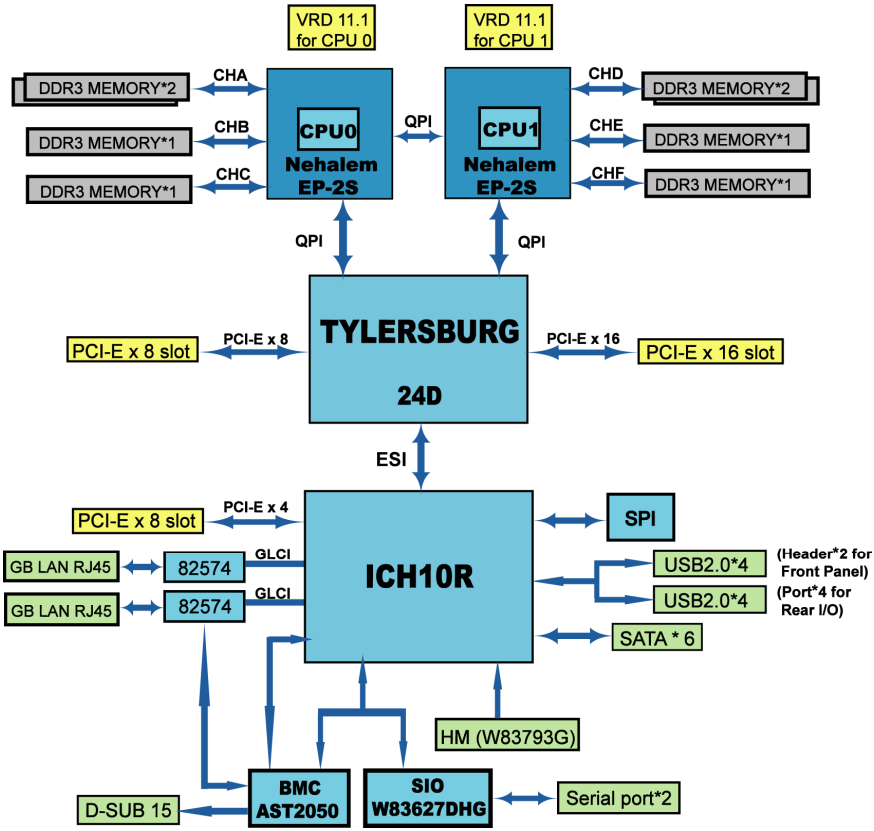
1.6.5 Jumpers & Connectors

Jumper/Connector	Function
J36/J37/J40/J41/J42/J47/J48/J49/J50/J56	Fan connector
J16	COM2 Header
J19/J20	Front USB Header
J25	Front Panel Audio
J35	Front Panel Header
J43	Clear CMOS
J44	PSMI Connector
J46	IPMB Pin Header
J45	SGPIO Header
J52	BMC RST Button
JP1	Clear CMOS
JP7	On Board SAS LSI1068E EN/DIS
JP8/JP9	COM2 Select

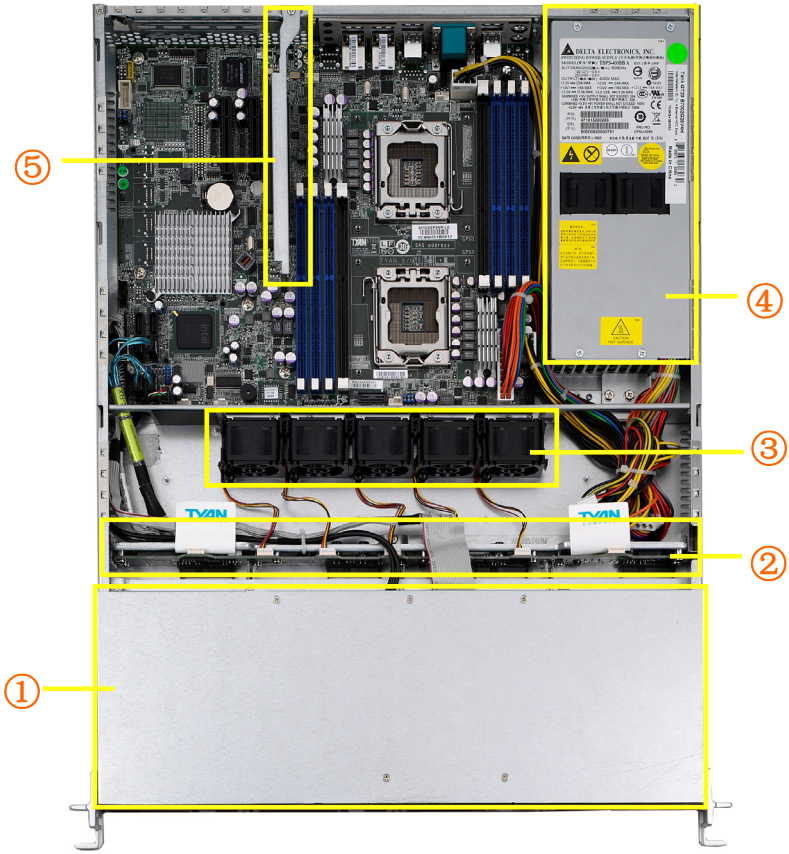
Jumper Legend

	**OPEN - Jumper OFF**	**Without jumper cover**
	CLOSED - Jumper ON	**With jumper cover**

1.6.6 System Block Diagram



1.6.7 Internal View



①	HDD Cage
②	M1232 HDD/FAN Board
③	System Fan Unit
④	Power Supply
⑤	M2083 - RS PCI-E Riser Card

Chapter 2: Setting Up

2.0.1 Before you Begin

This chapter explains how to install the CPUs, CPU heatsinks, memory modules, and hard drives. Instructions on inserting add on cards are also given.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconne--cted with your hands. It is recommended that you do not use pliers to remove connectors as it may damage the soft metal or plastic parts of the connectors.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to GT20-B7002 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Note:

All connectors are keyed to only attach one way.

All use the correct screw size as indicated in the procedures.

2.1 Installing Motherboard Components

This section describes how to install components on to the motherboa-rd, including CPUs, memory modules and add on cards.

2.1.1 Removing the Chassis Cover

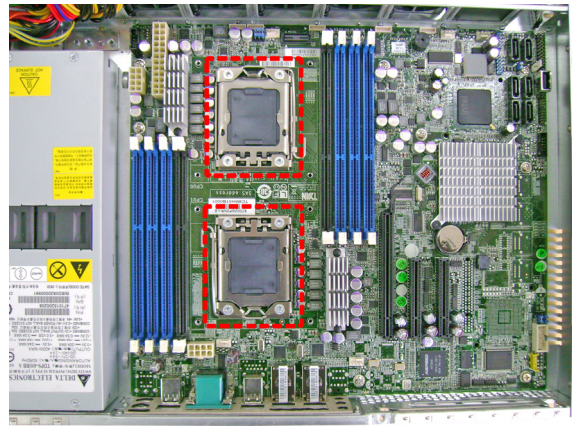
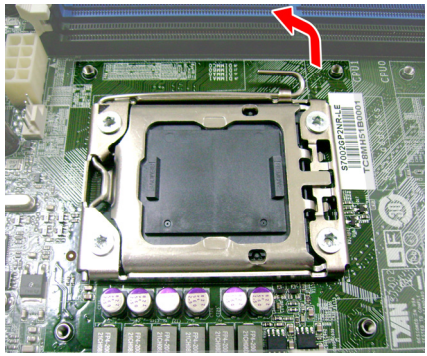
Follow these instructions to remove GT20-B7002 chassis cover.

1. Unscrew the rear top cover on the back side as shown in the small diagram.

2. Slide the rear top cover out.

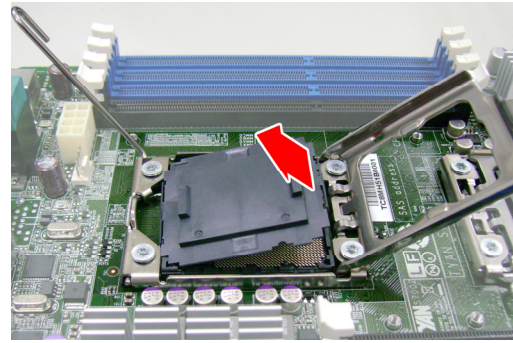
2.1.2 Installing the CPU and Heatsink

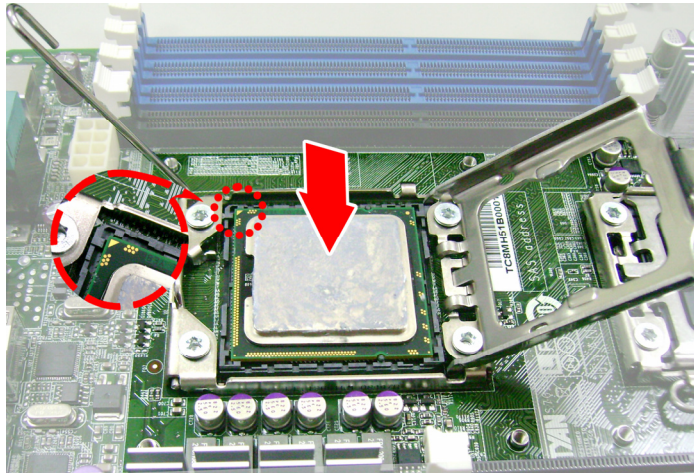
Follow the steps below on installing CPUs and CPU heatsinks.

1. Locate the CPU socket.	
	2. Press the lever and unlock the CPU socket.

3. Lift the CPU protection cap up and lay the CPU into the socket(A), ensuring pin1 is correctly located(B);

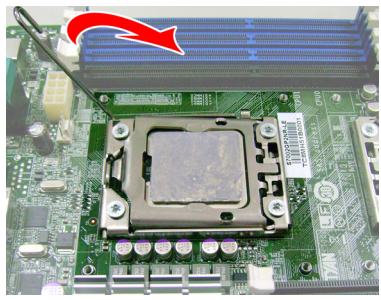
A

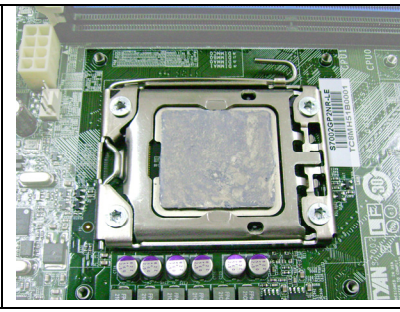


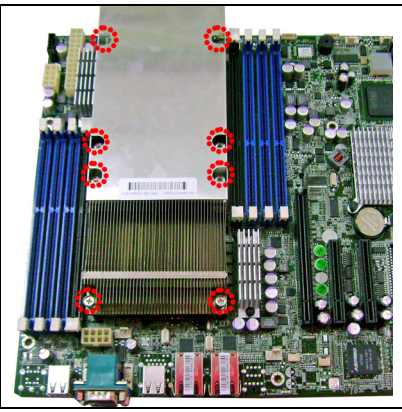


B

4. Close the socket cover and press the CPU lever down to secure the CPU;





5. Place the heatsink on top of the CPU and secure it with 8 screws.	

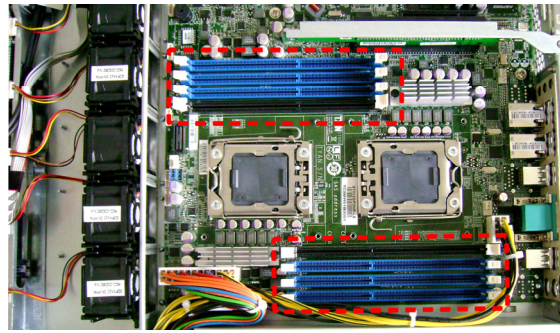
Note:

The system supports two CPUs. For CPU sequence please refer to Chapter 1.6.4.

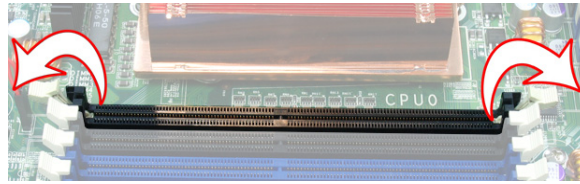
2.1.3 Installing the Memory

Follow these instructions to install the memory modules onto the motherboard.

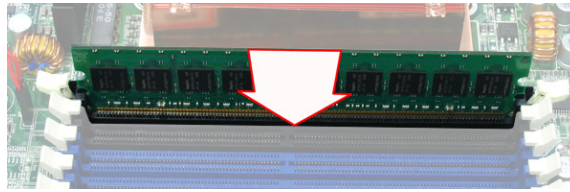
1. Locate the memory slots on the motherboard.

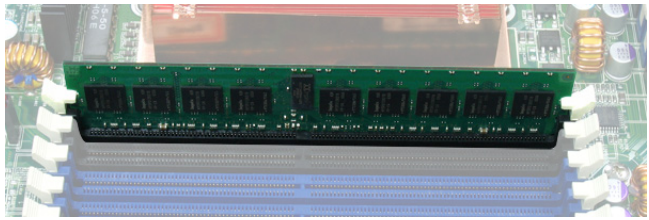


2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.





Note:

1). For the DIMM number please refer to the motherboard placement in "2.3 - Board Parts, Jumpers and Connectors" for memory installation.

2). Refer to the memory population option table for recommended memory installation instruction.

Memory Population Option Table

To achieve the best performance, TYAN® strongly recommended memory installation configuration as listed below:

1. Single CPU installed (CPU0 Only)

Quantity of memory / DIMM Slot	1	2	3	4
CPU0 DIMM CHA1				√
CPU0 DIMM CHA0	√	√	√	√
CPU0 DIMM CHB0		√	√	√
CPU0 DIMM CHC0			√	√
CPU1 DIMM CHD1				
CPU1 DIMM CHD0				
CPU1 DIMM CHE0				
CPU1 DIMM CHF0				

2. Single CPU installed (CPU1 Only)

Quantity of memory / DIMM Slot	1	2	3	4
CPU0 DIMM CHA1				
CPU0 DIMM CHA0				
CPU0 DIMM CHB0				
CPU0 DIMM CHC0				
CPU1 DIMM CHD1				√
CPU1 DIMM CHD0	√	√	√	√
CPU1 DIMM CHE0		√	√	√
CPU1 DIMM CHF0			√	√

3. Dual CPU installed (CPU0 & CPU1)

Quantity of memory / DIMM Slot	1	2	3	4	5	6	7	8
CPU0 DIMM CHA1							√	√
CPU0 DIMM CHA0	√	√	√	√	√	√	√	√
CPU0 DIMM CHB0			√	√	√	√	√	√
CPU0 DIMM CHC0					√	√	√	√
CPU1 DIMM CHD1								√
CPU1 DIMM CHD0		√	√	√	√	√	√	√
CPU1 DIMM CHE0				√	√	√	√	√
CPU1 DIMM CHF0						√	√	√

Note:

1). “ √ ” indicates a populated DIMM slot.

2). If installing only **one** processor, you can choose either CPU0 or CPU1.

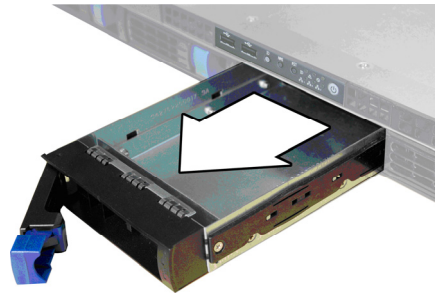
3). For **two slots per channel** configuration, it requires populat--ion to start with the DIMM slots furthest away from the processor.

2.1.4 Installing Hard Drives

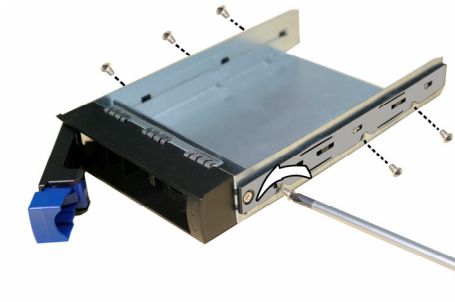
The GT20-B7002 supports four 3.5” hard drives. Follow these instructions to install a hard drive.

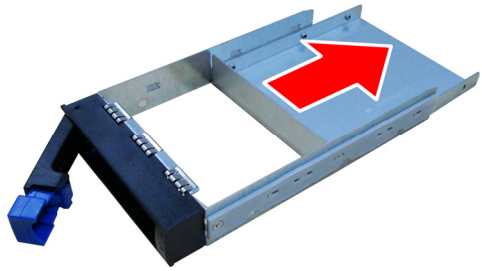
1. Press the locking lever latch and pull the locking lever open.

2. Slide the HDD tray out.

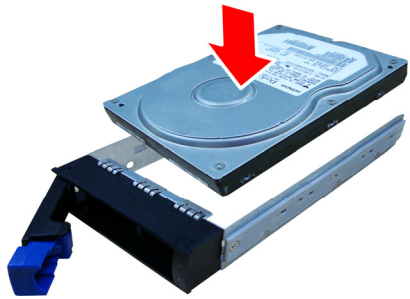


3. Remove the 6 screws and slide the dummy tray out.

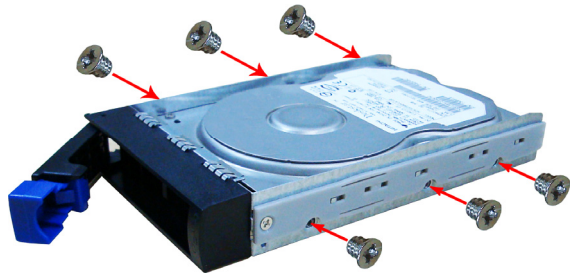




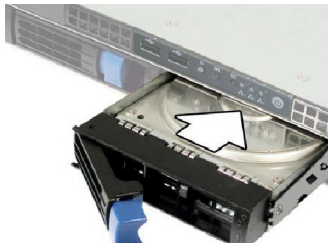
4. Place a hard drive into the drive tray.



5. Use 6 HDD screws to secure the HDD.



6. Reinsert the HDD tray into the chassis and press the locking lever to secure the tray.



2.2 Rack Mounting

After installing the necessary components, GT20-B7002 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Rail with Bracket x 2

Mounting Ears x 2

Screw Sack x 1

2.2.1 Installing the Server in a Rack

Follow these instructions to mount the GT20-B7002 into an industry standard 19" rack.

Note:

Before mounting GT20-B7002 in a rack, be sure that all internal components have been installed and the unit has been fully tested. Maintenance can be performed on the unit while in a rack but it is preferable to install the device in a fully operational condition.

Screw Sack

Including

A: M 5 x 15---------- 4 pcs

B: M 5 x 8 ----------10 pcs

C: M 4 x 4 ----------18 pcs

2.2.2 Installing the inner Rails to the Chassis

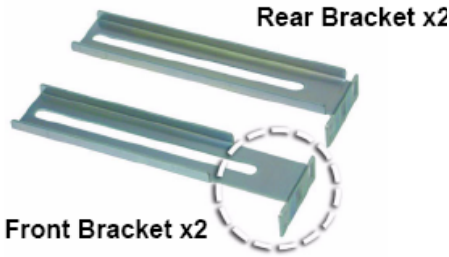
1. Screw the mounting ear to each side of GT20-B7002 as shown using 2 screws from the supplied screws kit.

2. Draw out the inner rails from sliding rails and Install inner rails to left and right sides of chassis using 2 M 4x4 screw for each side.

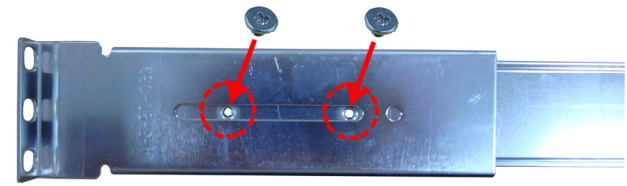
2.2.3 Installing the Outer Rails to the Rack

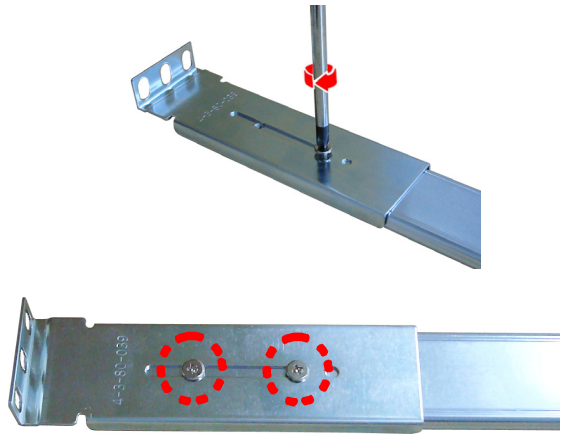
1. Measure the distance between inner side of the front and rear mounting brackets in the rack.

2. Locate the front and rear brackets.



3. Reserve 4cm on the front bracket. Secure the front bracket to outer rail with 2 M4 x 4 screws.





4. Reserve the distance same as in Step 3 on rear bracket, secure the rear bracket to outer rail with 2 M 4 x 4 screws for each side.

5. Secure the outer rail to the rack using 2 brackets and 4 M 5 x 8 screws for each side (A). Secure the mounting brackets from inside, not outside, of the rack (B).

A

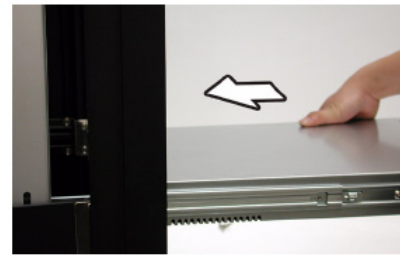
Mounting Bracket

B

2.2.4 Rack mounting the Server

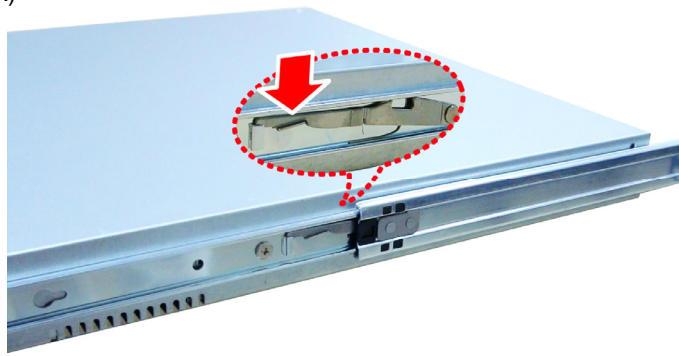
1. Draw out the middle rail to the latch position.

2. Lift the chassis and then insert the inner slide rails into the middle rails.



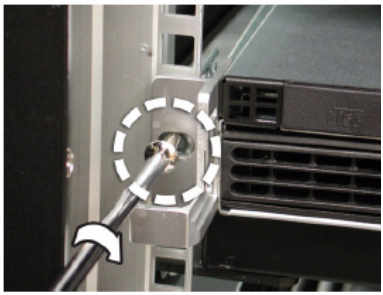
3. Press the latch key (A) then push the whole chassis into the sever rack (B).

(A)



(B)

3. Secure the mounting ears of chassis to the rack with 1 M 5 x 15 screw on each side.



Note:

To avoid injury, it is strongly recommended that two people lift GT20-B7002 into the place while a third person screws it to the rack.

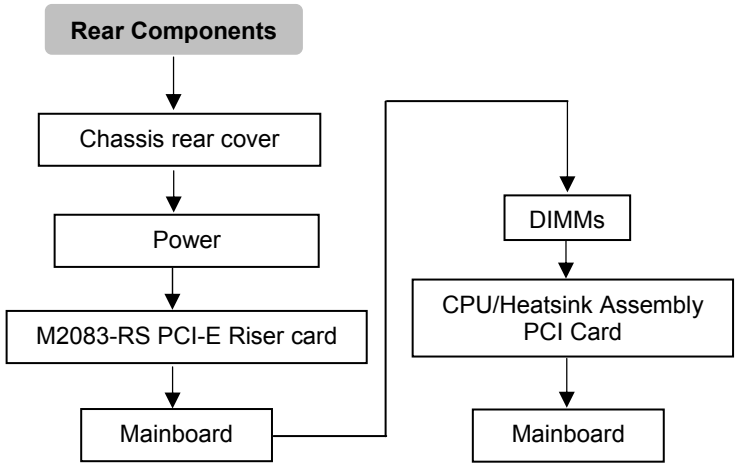
Chapter 3: Replacing Pre-Installed Components

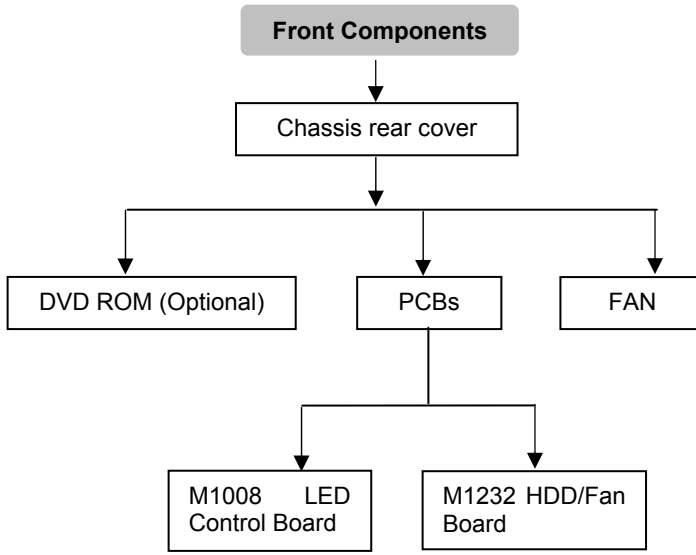
3.1 Introduction

This chapter explains how to replace the pre-installed components, including the Motherboard, M1008 LED control board, M1232 HDD/Fan board, M2083-RS PCI-E Riser card, System fan, ODD drive, Power supply unit etc.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.




Front Components
Chassis rear cover
DVD ROM (Optional)
PCBs
FAN
M1008 LED Control Board
M1232 HDD/Fan Board

3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover. Follow **Chapter 2.1.1** to remove the cover of the GT20-B7002.

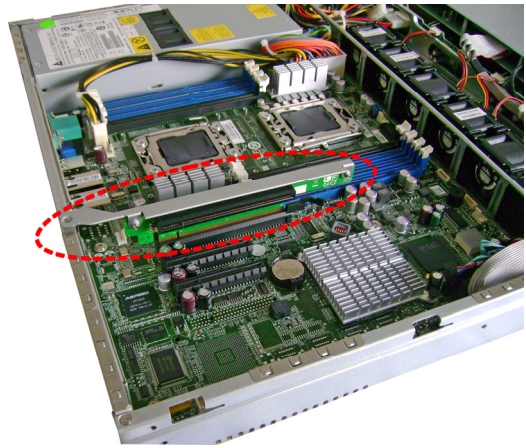
3.4 Replacing Motherboard Components

Follow these instructions to replace motherboard components, including the motherboard.

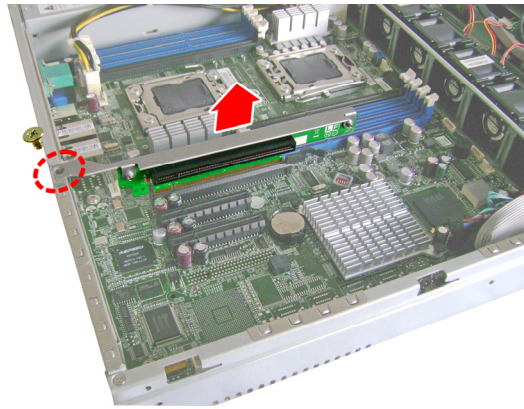
3.4.1 Replacing Expansion Card

The GT20-B7002 has **one preinstalled PCI-E×16** riser card, Follow the instructions below to disassemble the M2083-RS PCI-E riser card.

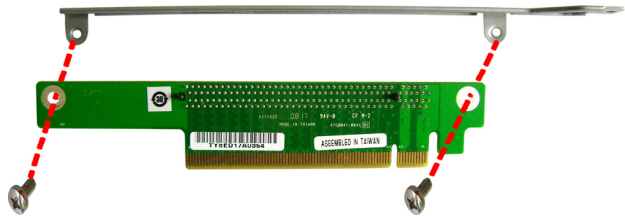
1. Locate the riser card on the motherboard, unscrew the bracket from the slot.



2. Unscrew the bracket and pull it up from the slot in the direction as the arrow shows.



3. Unscrew the card from the bracket.

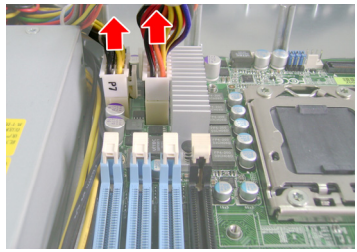


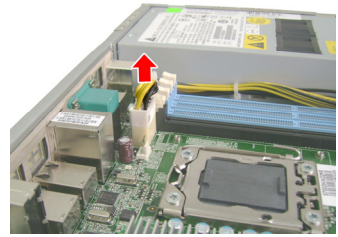
4. Install a new riser card onto the bracket following the above procedures in reverse.

3.4.2 Disconnecting All Motherboard Cables

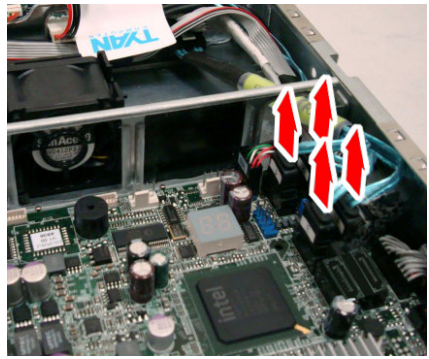
Before replacing the motherboard or certain components, remove cables connected to the motherboard. Follow these instructions to remove all motherboard cables.

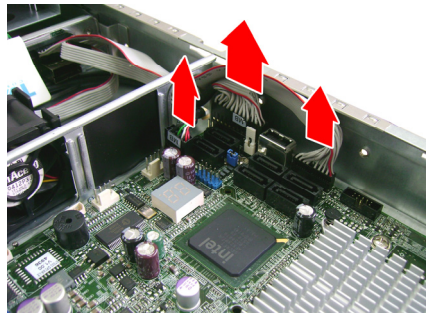
1. Disconnect all the power cable.





2. Disconnect SATA cable, Fan cable, USB cable and front panel cable.

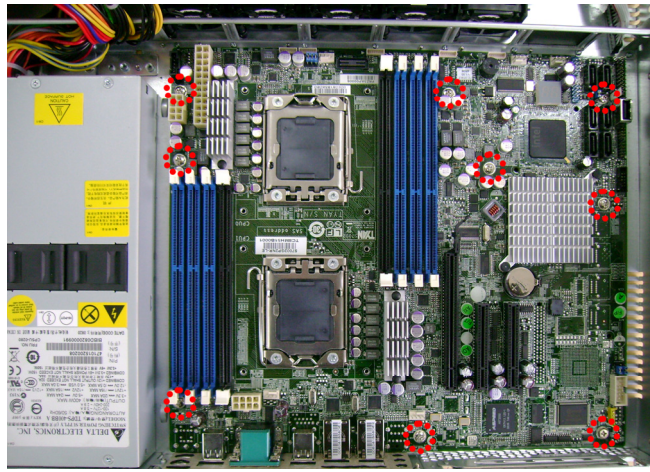




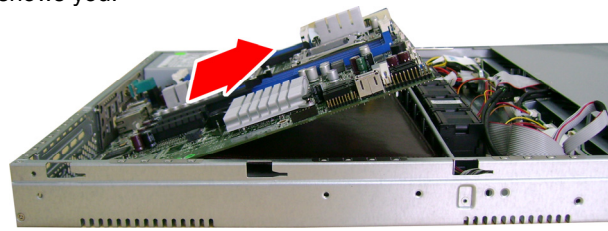
3.4.3 Removing the Motherboard

After removing all of the aforementioned cables, follow the instructions below to remove the motherboard from the chassis.

1. Remove the heatsinks and processors if installed.
2. Remove the nine screws securing the motherboard to the chassis.



3. Carefully lift the motherboard from the chassis as the image shows you.



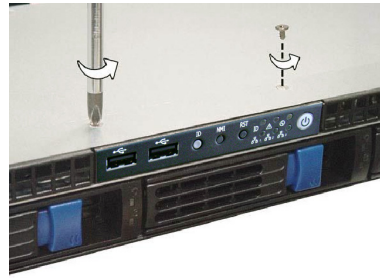
Note:

Lift the front edge of the board to an angle of about 45 then slides the whole board out.

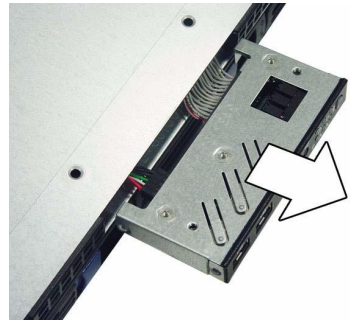
3.5 Replacing the LED Control Board

Follow these instructions to replace the M1008 LED control board.

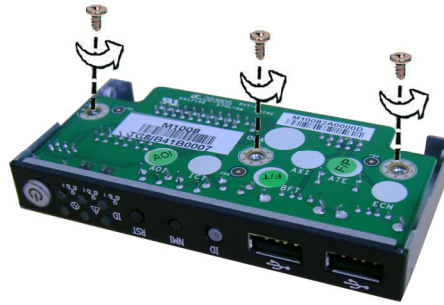
1. Remove the two screws securing the LED control board unit to the chassis.



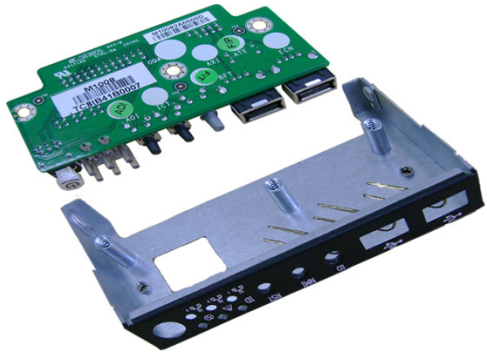
2. Push the LED control board unit out and unplug the cables from the connectors at the back of the unit.



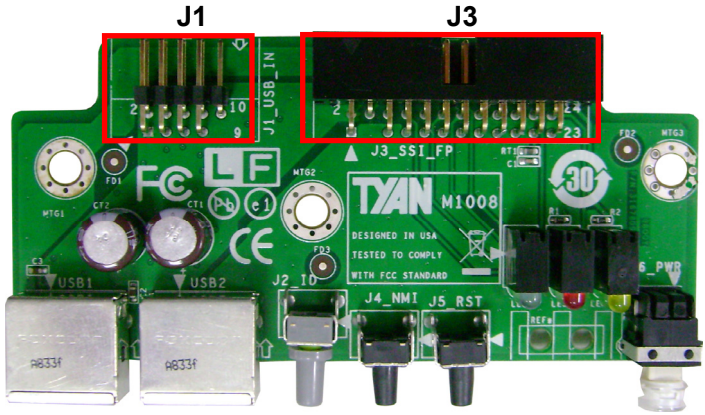
3. Remove three screws securing the LED control board to the bracket.



4. Lift the LED control board free from the chassis. After replacem--ent, insert the unit into the chassis following the above proced--ures in reverse.



3.5.1 M1008 LED Control Board Features



3.5.2 M1008 LED Control Board Connector Pin Definition

J1: USB Header

Definition	Pin	Pin	Definition
VCC	1	2	VCC
USB1-	3	4	USB2-
USB1+	5	6	USB2+
GND	7	8	GND
Key	9	10	GND

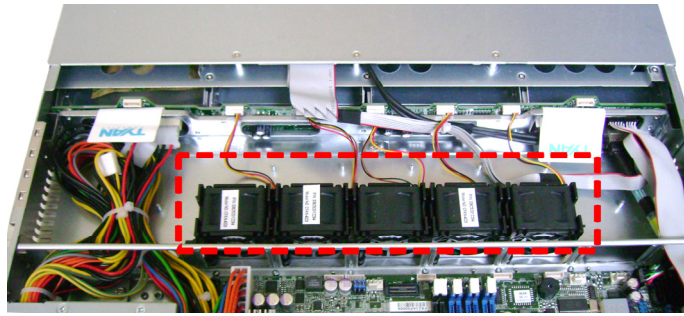
J3: SSI

Definition	Pin	Pin	Definition
PW_LED+	1	2	VCC
KEY	3	4	ID_LED+
PW_LED-	5	6	ID_LED-
HD/LAN3 LED+	7	8	SYS_FAULT1-
HD/LAN3 LED-	9	10	SYS_FAULT2-
PWR_SW+	11	12	LAN1_LED+
PWR_SW-	13	14	LAN1_LED-
RESET+	15	16	ICH_SMBDAT
RESET-	17	18	ICH_SMBCLK
ID_SW+	19	20	INTRU#
TEMP_SENSER	21	22	LAN2_LED+
EXT_INT	23	24	LAN2_LED-

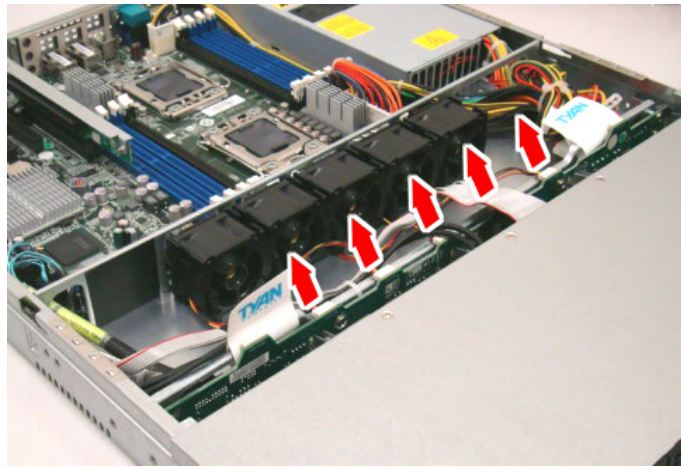
3.6 Replacing the System Fan

Follow these instructions to replace the cooling fans in your system.

1. Locate the cooling fans in your system.

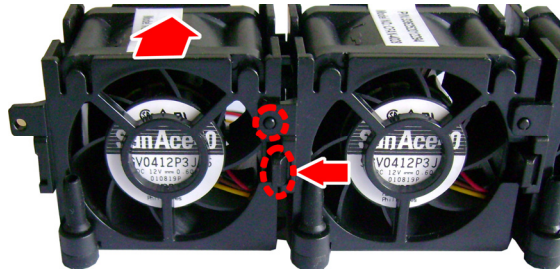


2. Unplug the cables connected to the HDD/FAN board and lift the fan unit up from the chassis.

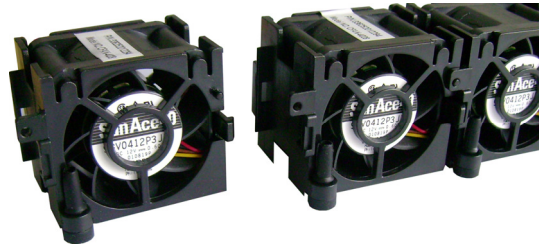


3. Install the new fan unit into the chassis after replace the broken single fan following the steps below.

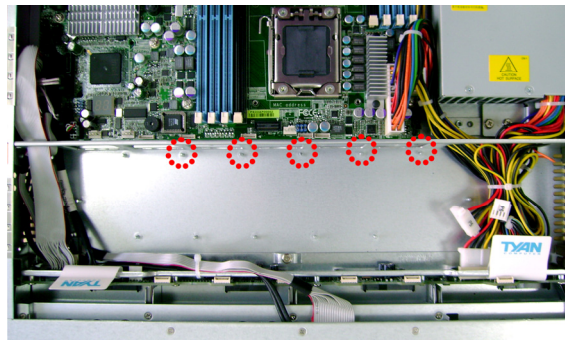
A



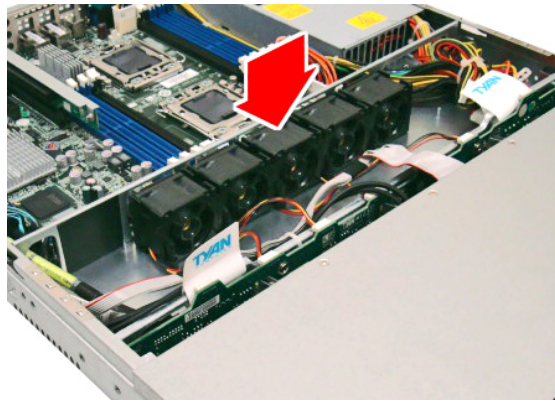
B



C



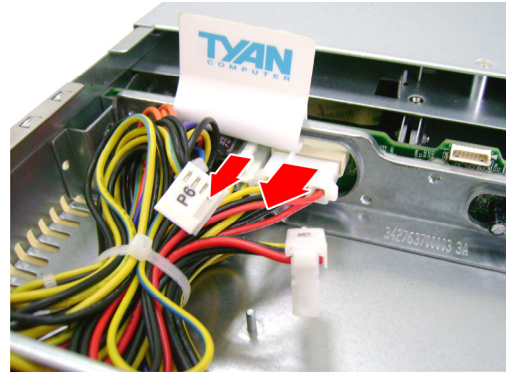
D



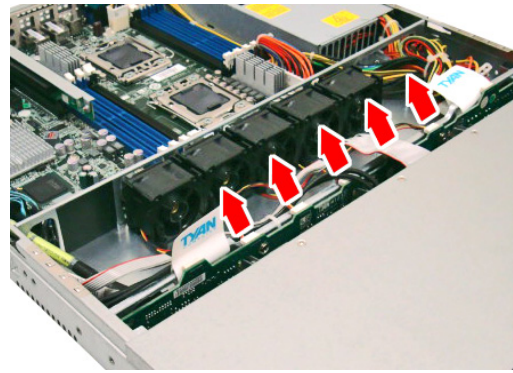
3.7 Replacing the M1232 HDD/FAN Board

Step 1: Disconnect all cables connected to M1232 HDD/FAN Board.

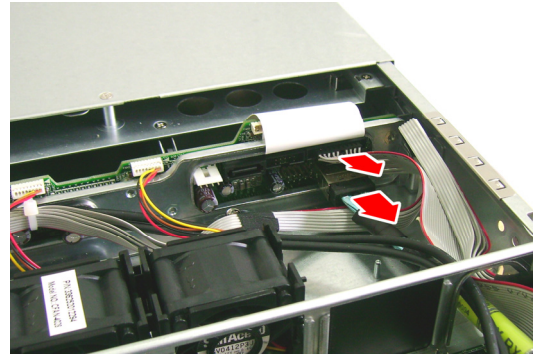
PW cable:



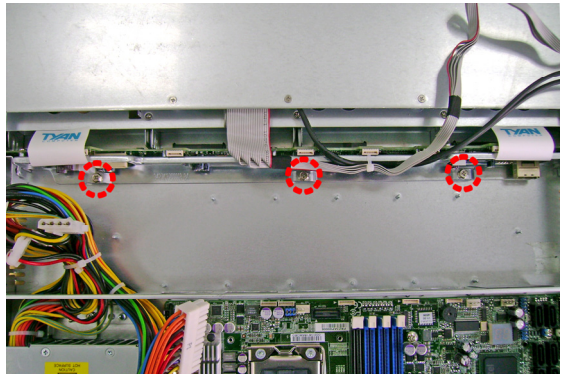
FAN cable:



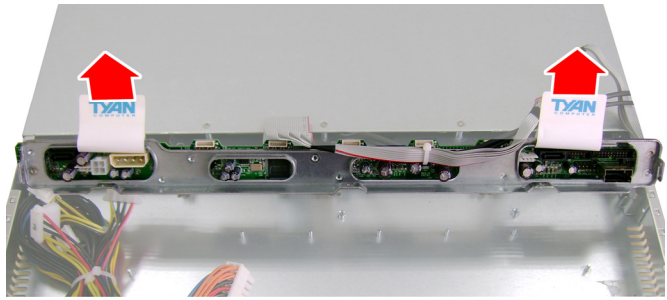
SATA cable and fan control cable:



Step 2: Remove the three screws securing the bracket to the chassis base.



Step 3: Lift the bracket up from the chassis.

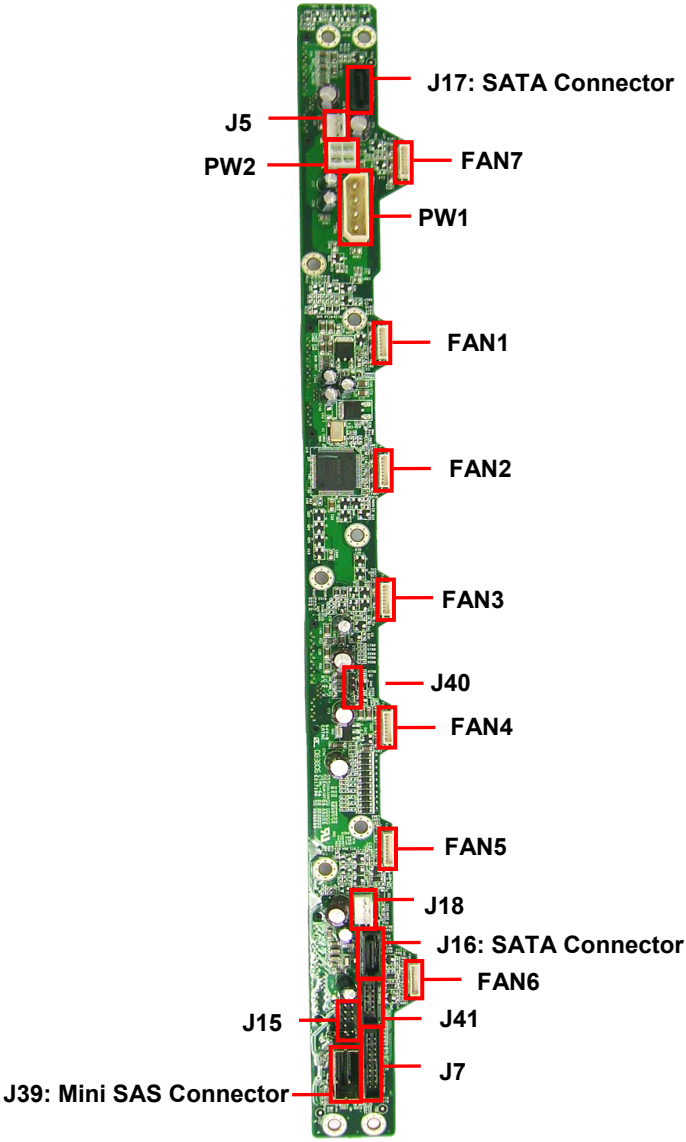


Step 4: Unscrew M1232 board from the bracket.

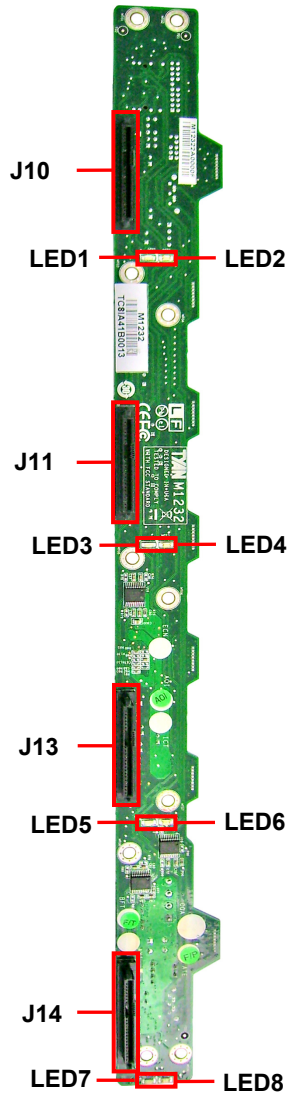
Step 5: Replace a new M1232 HDD/FAN Board and reinstall it into the chassis following the above steps in reverse.

3.7.1 M1232 HDD/FAN Board Features

Front View



Rear View:



3.7.2 M1232 HDD/FAN Board Connector Pin Definitions

PW1

Pin	1	2	3	4
Definition	+12V	GND	GND	+5V

PW2

Definition	Pin	Pin	Definition
GND	1	2	GND
+12V	3	4	+12V

J15 SGPIO JTAG

Definition	Pin	Pin	Definition
TCK	1	2	GND
TDO	3	4	3.3V
TMS	5	6	NI
NI	7	8	KEY
TDI	9	10	GND

J41 SGPIO for IOH

Definition	Pin	Pin	Definition
SM_CLK	1	2	SGPIO_0
SM_DATA	3	4	SGPIO_1
GND	5	6	SGPIO_2
KEY	7	8	SGPIO_3
NI	9	10	HD_ERR_LED

J5 Slim Hard Disk power

Pin	1	2	3	4
Definition	+12V	GND	GND	+5V

J18 Slim CDROM power

Pin	1	2	3	4
Definition	+12V	GND	GND	+5V

J7 TACH_PWM

Definition	Pin	Pin	Definition
F1_TACH	1	2	F6_TACH
F2_TACH	3	4	F7_TACH
F3_TACH	5	6	F8_TACH
F4_TACH	7	8	F9_TACH
F5_TACH	9	10	F10_TACH
GND	11	12	KEY
CPU_PWM2	13	14	CPU_PWM
F11_TACH	15	16	F13_TACH
F12_TACH	17	18	F14_TACH
NI	19	20	CPU_PWM3

J40 PWM select for system FAN3

Pin	Definition
1	CPU_PWM
2	PWM_12(FAN3)
3	CPU_PWM2

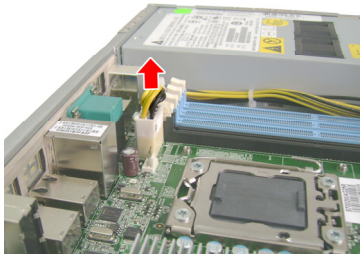
Pin 1-2 chose by CPU_PWM (Default)
Pin 2-3 chose by CPU_PWM2

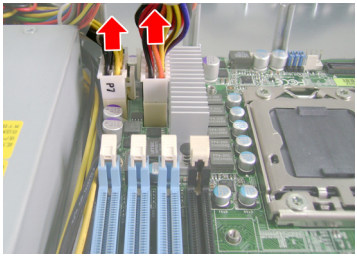
LED Definition:

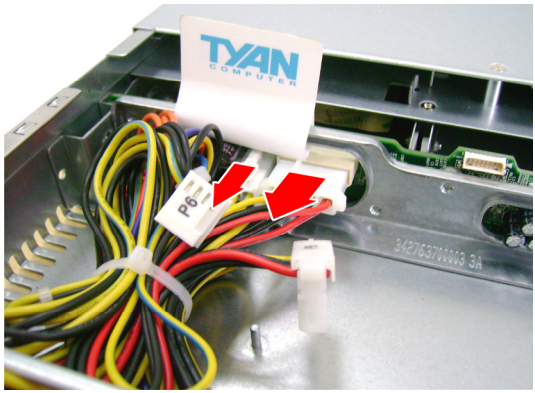
LED	Color	State	Description
HDD fail LED (LED 2/4/6/8)	Amber	On	SATA/SAS HDD fail
		Off	No failure found
HDD Power/Access LED (LED 1/3/5/7)	Green	On	SATA/SAS HDD ready
		Blinking	SATA/SAS HDD access activity
		Off	Power disconnected

3.8 Replacing the Power Supply

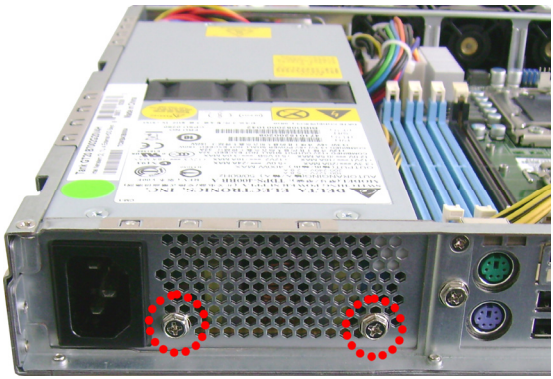
1. Disconnect the power cables from the motherboard and the HDD/FAN board.

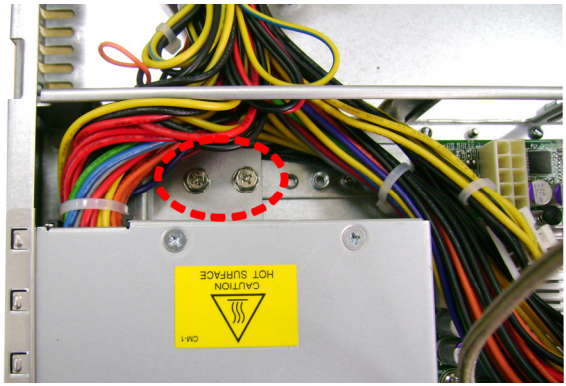






2. Remove the screws that secure the power supply to the chassis.



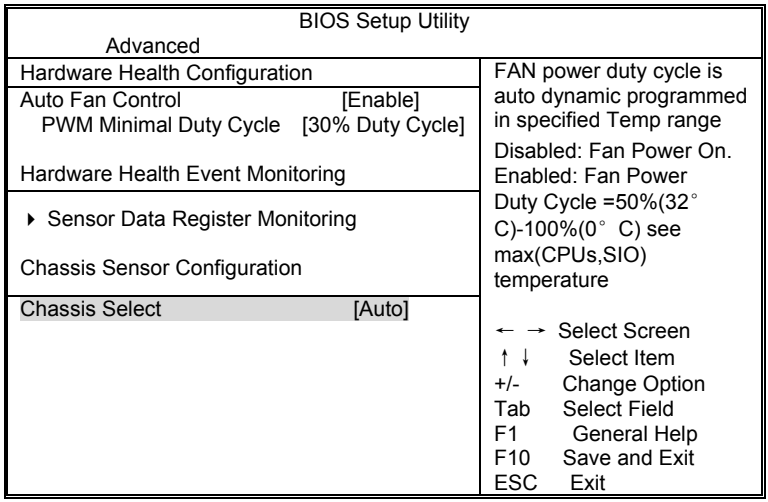


3. Take out the power unit and install a new one follow the above steps in reverse.

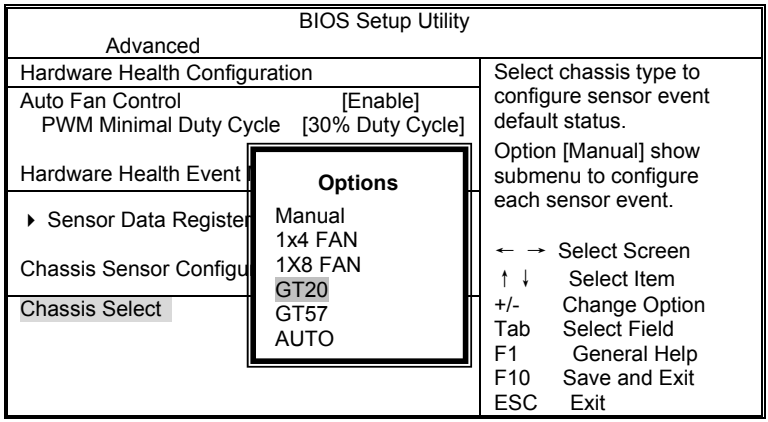
Appendix I: BIOS Differences

The BIOS of B7002 is similar to S7002 while there are some differences in menus. The following table displays those differences in details. For a complete view of S7002 BIOS, please refer to the motherboard manual.

1. Hardware Health Configuration Sub- Menu


BIOS Setup Utility
Advanced
Hardware Health Configuration
Auto Fan Control [Enable]
PWM Minimal Duty Cycle [30% Duty Cycle]
Hardware Health Event Monitoring
Sensor Data Register Monitoring
Chassis Sensor Configuration
Chassis Select [Auto]
FAN power duty cycle is auto dynamic programmed in specified Temp range
Disabled: Fan Power On.
Enabled: Fan Power Duty Cycle =50%(32° C)-100%(0° C) see max(CPUs,SIO) temperature
← → Select Screen
↑ ↓ Select Item
+/- Change Option
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit

2. Chassis Sensor Configuration



3. System Fan Reading

BIOS Setup Utility			
Advanced			
01 CPU0 Below Tmax	: xx°C	OK	Press Enter key to display remain sensor
02 CPU1 Below Tmax	: xx°C	OK	
05 System Ambient	: xx°C	OK	ESC key to return this page.
06 DIMM0 Area (RT4)	: xx°C	OK	
0A CPU0 VCORE	: x.xxx V	OK	
0B CPU1 VCORE	: x.xxx V	OK	
0F 5V	: x.xxx V	OK	
0D +12V	: x.xxx V	OK	
0E VBAT	: x.xxx V	OK	
0C 3.3V	: x.xxx V	OK	
20 SYS.1(CPU0)	: xxxx RPM	OK	
21 SYS.2(CPU1)	: xxxx RPM	Alert	
22 SYS.3(Front 2)	: xxxx RPM	OK	
23 SYS.4(Rear 1)	: xxxx RPM	Alert	
24 SYS.5(Front 1)	: xxxx RPM	OK	
25 SYS.6		N/A	
26 SYS.7		N/A	
▸SDR Monitoring Next Page			←→ Select Screen ↑↓ Select Item +/- Change Option Tab Select Field F1 General Help F10 Save and Exit ESC Exit

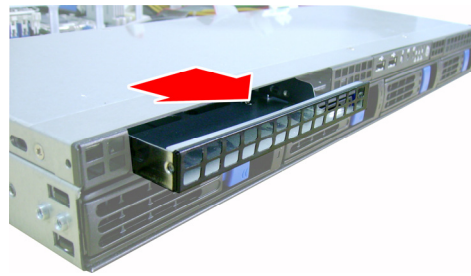
Note:

Please be noticed that the BIOS menu are continually changing due to BIOS updating. The BIOS menu provided are the most updated when this manual is written. Please visit TYAN®'s website at http://www.TYAN.com for the information of the latest BIOS edition.

Appendix II: Replacing Slim DVD-ROM (Optional)

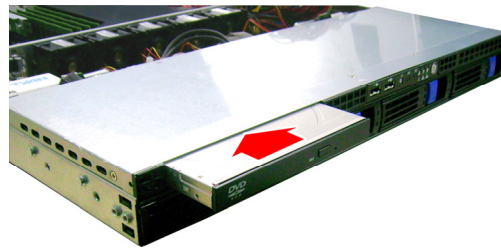
GT20-B7002 provides you with an optional slim DVD ROM. Follow these instructions to install the DVD-ROM.

1. Remove the DVD cover from the chassis front panel.

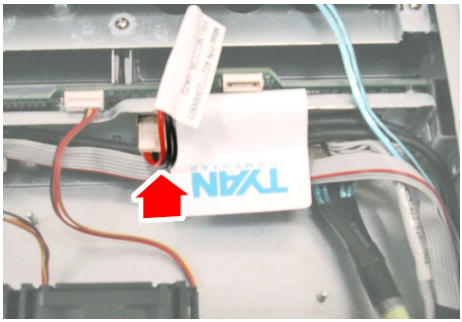


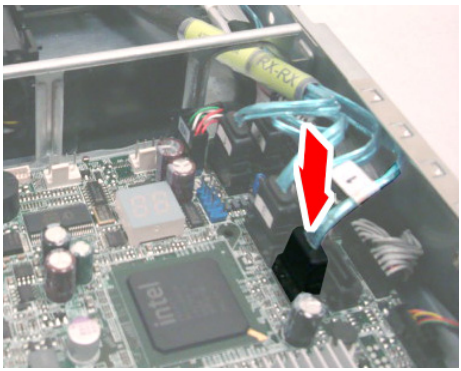
2. Connect the power and SATA cable of the DVD ROM.

3. Push the DVD through the front of the GT20-B7002.



4. Connect the power cable and DVD SATA cable to the HDD board and mother board.





Appendix III: Cable Connection Tables

FAN Cable

System Fan to M1232

System Fan	Connect to	M1232
Fan1	→	Fan1
Fan2	→	Fan2
Fan3	→	Fan3
Fan4	→	Fan4
Fan5	→	Fan5

M1232 HDD/FAN Board to S7002 Motherboard

	M1232	Connect to	S7002 Motherboard
Mini-SAS Cable	J39	→	SATA0~3
Fan Control Cable	J7	→	J43

M1008 LED Control Board to S7002 Motherboard

	M1008	Connect to	S7002 Motherboard
Control Cable	J3	→	J35
USB Cable	J1	→	J19

Power Supply Cables

PSU to S7002

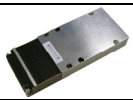
PSU	Connect to	S7002 Motherboard
2X12 PWR	→	PW3
P2	→	PW1
P7	→	PW2

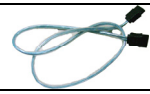
PSU to M1232

PSU	Connect to	M1232
P3	→	PW2
P4	→	PW1

Appendix IV: FRU Parts Table

GT20-B7002 FRU Parts

Item	Model Number	Part Number	Picture	Quantity	Description
Motherboard	S7002GP2NR-LE	/		1	TYANS7002GP2NR-LE Motherboard
Chassis Unit	CCHA-0350	432782800001		1	Chassis Unit;GT20 B7002
Chassis Top Cover	CCCV-0140	340772300001		1	GT20 Top Cover
IO Shielding	CIOS-0090	340782800001		1	IO Shielding for S7002
Chassis Front Bezel	CFBZ-0070	541273910008		1	Front Bezel for GT20 Series 1U Chassis
HDD Tray	CHDT-0051	340746300001		4	3.5" HDD Tray
Power Supply	CPSU-0281	471015200218		1	400W single Power Supply
FAN	CFAN-0241	336252012294		5	14700RPM,40*40*28MM,4PIN
Heatsink & Cooler	CHSK-0370	343782700001		1	Passive Heatsink
Peripheral Drives & Parts	CDVD-0060	523410299033		1	Slim DVD Driver, SATA

Item	Model Number	Part Number	Picture	Quantity	Description
PCBA	M1232	/		1	FAN/HDD adapter board
	M1008	/		1	Front Control Board
	M2083-RS	/		1	PCI-E X16 1U Riser Card
Rack Mounting Parts	CRAL-0032	340738500004		1	Slide Rail Kit
	CEAR-0050	340740900010		1	Mounting Ear Kit
Cable Set	CCBL-072N	422782800001		1	FP Control Cable,600mm
	CCBL-035B	422769000002		1	USB Cable,500mm
	CCBL-039I	422782800002		1	Fan Control Cable,200mm
	CCBL-067N	422782800004		1	Mini SAS Cable,300mm
	CCBL-0326	422764400004		1	SATA Cable,250mm
	CCBL-0422	422772300003		1	Slim ODD SATA Cable,110mm
	CCBL-0310	332810000280		1	A/C Power Cord, L=1830mm,US type
	CCBL-0300	332810000281		1	A/C Power Cord, L=1830mm,EU type

Note:

The table is subject to change without notice. Please visit our Web site at http://www.tyan.com for latest update.

Appendix V: Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequence).

If these options are not available for you then Mitac® Computer Corporation can Besides designing innovative and quality products for over a decade, TYAN® has continuously offered customers service beyond their expectations. TYAN®'s website (http://www.tyan.com) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find their latest software and operating system components to keep their systems running as powerful and productive as possible. TYAN® also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, TYAN® serves multiple market segments with the industry's most competitive services to support them.

"TYAN®'s tech support is some of the most impressive we've seen, with great response time and exceptional organization in general." — Anandtech.com

Please feel free to contact us directly for this service at tech-support@tyan.com

Help Resources:

1. See the beep codes section of this manual.
2. See the TYAN® website for FAQ's, bulletins, driver updates, and other inform--ation: http://www.tyan.com
3. Contact your dealer for help before calling TYAN®.
4. Check the TYAN® user group: alt.comp.periphs.mainboard.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

Note:

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufa--cturer for a Return Merchandise Authorization (RMA) nu--mber. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid.

TYAN® will pay to have the board shipped back to you.

TYAN® GT20-B7002 User's Manual V1.10

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